THE PRODUCTIVITY INSTITUTE

EP.3 - Productivity Puzzles Transcript

Productivity in UK health care during and after the COVID-19 pandemic

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Professor Bart van Ark How has the pandemic impacted the performance of the health care sector? How do we measure healthcare performance? How did hospital practices change? And are there any silver linings of this crisis for the future of NHS? We're going to find out, welcome to Productivity Puzzles.

Hello, and welcome to the third episode of Productivity Puzzles. A new series of podcasts on productivity brought to you by The Productivity Institute and sponsored by Capita.

I'm Bart van Ark and I'm a Professor of Productivity Studies at the University of Manchester and the Director of The Productivity Institute, a UK-wide research body on all things productivity in the UK and beyond. And if you're returning to Productivity Puzzles after our first two shows, nice to have you back. If you missed out on these episodes please check them out on your streaming platform or go to our website at productivity.ac.uk.

Today's show focuses on one of the economy's industries which has been most disrupted by the pandemic, namely the healthcare sector. We have all seen the horrible pictures during the various phases of corona and the enormous challenges that hospitals and health workers have been facing.

But we have also seen an amazing resilience where across the NHS, we saw healthcare workers invent on the fly new ways of treating COVID and non COVID patients, as well as rolling out the vaccination program at record speed.

So, how has the health care sector actually performed under those pressures? And what are the lessons learned to improve the productivity performance of the NHS? To discuss that I'm joined today by three guests who have thought a lot about those questions, but from different perspectives.

So, first of all, we're joined by Diane Coyle who's a professor at the Bennett Institute of Public Policy at the University of Cambridge and she's also a Director at The Productivity Institute leading the work from the University of Cambridge. Diane is the lead author of a new study on productivity in UK healthcare during and after COVID-19 and that's what we're going to discuss today.

Diane welcome and I wonder, is this the first time you would have been looking at UK healthcare from a professional point of view and what was most striking to you when you started this project?

Professor Diane Coyle: It is actually yes. I mean, of course, like everybody in the country, I care a lot about the NHS and healthcare; it's a constant subject of conversation, particularly in the past year or so.

But I came at this issue through being interested in economic measurement more broadly. And what was fascinating about it was actually the interviews that we conducted Kaya and myself with a number of senior leaders in two different hospitals and getting that kind of detail and understanding

of how things actually operate that you don't normally get as an economist, thinking about data and models.

Professor Bart van Ark Yes and we are going to talk extensively about that. Now, one of Diane's co-authors is joining us as well. Kaya Dreesbeimdiek. Kaya is a researcher at a healthcare design group at the Engineering Design Centre at the University of Cambridge. During the first and second wave of COVID-19, Kaya worked as a voluntary process engineer for Cambridge University Hospitals NHS Foundation Trust. And in this study, she carried out the interviews that Diane just referred to with senior hospital managers on the impact of the pandemic on hospitals, which we're indeed going to discuss. So, Kaya, you actually were right in the middle of this, literally as a volunteer, working on this in Cambridge, what was one of the most striking experiences you can share with us?

Kaya Dreesbeimdiek Yes, I was indeed. It was a very nice opportunity for me. Back then, I was finishing my studies at the Institute for Manufacturing at the university and had the opportunity to join this project where we generally employed a range of data-driven approaches to help the hospital in their response strategy around various operational issues in bed planning or oxygen planning. And it was a great opportunity to walk in, to get hands-on experience in healthcare and to help the hospital during these difficult times.

Professor Bart van Ark Very interesting. And last but not least we're joined today by Jennifer Dixon and Jennifer is the Chief Executive of The Health Foundation, which is an independent charity that's committed to bringing about better health and health care for people across the UK. Jennifer has a long experience in the UK healthcare sector, including a five-year service as Chief Executive of the Nuffield Trust. And Jennifer will talk to us about the sort of broader implications of the pandemic on the NHS.

Jennifer. I wonder, you know, when the pandemic hit, how did it change what The Health Foundation did? You must also have had to respond very quickly.

Dr Jennifer Dixon Yes. Well, first of all, I personally felt rather useless because I am a doctor and there I was not on the front line, I was desperate to get the white coat on and go onto the wards. But luckily I'm very fortunate to be at The Health Foundation.

So what we did is we donated staff to the Department of Health, NHS England, to Public Health England. We scrambled and did lots of new research. We gave out a lot of grants for research and also to the front line as well. And we were able to make bigger donations to the charitable sector as well for emergency assistance. So I was very pleased despite not getting my hands dirty. That's what we did.

Professor Bart van Ark Yes, so everybody is playing their role in this pandemic. That's great. Great to hear. Okay, so, so let's start with a key question. We are at The Productivity Institute after all. So the first question to ask is how do we actually understand and measure healthcare, performance and productivity, and indeed the study that Diane and Kaya authored together with Annabel Manley, which is the third author which can be downloaded from our website, productivity.ac.uk.

So that study spends a good deal of time to make sense out of the numbers as they're being published in a national statistics on what does the healthcare sector produce. And indeed you look at these numbers, we saw a very sharp decline in healthcare output in 2020. And that's kind of surprising because there's been so much going on in the healthcare sector. So how can it be that healthcare output actually fell? And this is important because actually, the healthcare sector is very large. It counts for one-third of total public expenditure and 10% of our GDP. It also had an impact on the fall in the economy.

So Diane when you went into this study, you know, you looked at these numbers how did you go about this?

Professor Diane Coyle Well Bart you've just touched on why we started on this because a number of people looked at the UK GDP figures, the whole economy figures in the early part of 2020 and they said, why is it so much worse for us than for other countries? And a lot of the reasons for that worst performance seemed to be looking at healthcare output and education output.

And as you said, that was bizarre because everybody knew how hard the staff and the NHS were working.

And if you look at how the output figures for health constructed, what they have to do is combine together all kinds of different activities that go on in the health service, everything from your dental check-up, to your prescription medicines, to your treatment in hospital, if you have some kind of emergency and they all need combining together.

And the Office of National Statistics does that by weighting all of these many activities and the weights depend on how much the activity costs, but also how important a part of health care activity it is. And in normal times critical care is actually a really small part of what health service does compared to all of those everyday things that we go to a GP for all the time or prescription drugs and so on.

And so if you were using the same weight as before, as in a normal year that showed you some increase in critical care activity, but a really big drop in all the other things that we weren't doing. Because as the pandemic hit us, we stopped going to the GP.

People didn't go to hospital actually, even A&E saw quite a big decline in the number of people coming for emergency treatment. And so that decline was real. And so the question is and is still, I think an open question. How should you adjust the weights to combine these different activities in a way that reflects what really happened?

And that I think it depends on, do you want to know a normal year perspective on what happened? Because all of those declines in cancer care and routine operations did happen and there will be a backlog for the NHS to catch up. And at the same time, you want to take proper account of the additional burden on critical care and do new things like vaccinations and Tests and Trace.

So that's the challenge and figuring out what we think happened.

Professor Bart van Ark: So to some extent, it was really a change in activities and basing yourself on the share of those activities in a normal year. That sort of, you know, got a little bit out of whack. The question that still arises, the critical care suddenly became more important. Did we see productivity go up there in the numbers at least?

Professor Diane Coyle Well, certainly we saw activity go up there. I think it depends more what you mean by productivity because there is in health a real key difference between the number of things that get done and the outcomes for patients and what we really care about are the outcomes for patients. And I think there's a sort of a blurring between outputs and outcomes that matters in trying to think about that.

But we did, you know, to go back to my original point compared to other countries, I think we have done worse and that's because we didn't have any slack in our hospital system, whereas a country like Germany did. So they suffered a lesser decline in other health activities.

Professor Bart van Ark Yes, we talk about that at the end of the podcast when we talk about how do we prepare for the future here and whether we need this kind of spare capacity and what that means for productivity? Let me just find out. So, you know, Jennifer, when you looked at these numbers and you see a lot happening in the healthcare sector itself, were you surprised? Do you think it makes sense what we are measuring here?

Dr Jennifer Dixon Yes. I mean, I think the longer run story is that productivity in the NHS and the health sectors has always been difficult to really get a full grasp of, we see through the glass darkly and for a long period, NHS productivity has tracked upwards, tracking the general economy and probably exceeding it in terms of productivity growth.

And really then we hit the pandemic. Where 2020 was just so highly abnormal for the reasons we all know. And Diane set out really well; abnormal on the demand side, because people are simply not coming forward for care and very abnormal on the supply side, in that certain activities were far more prevalent, like critical care and so on and certain activities such as elective surgeries were just stopped. And then there's all the virtual kinds of care that we were doing intensively.

So laying up an abnormal year on top of very inadequate measures of productivity, really gives you a very murky picture about what we can conclude from this particular year.

So I think that's the sort of longer run picture I would want to say and the big picture is to try to get much better over time to measure productivity using all sorts of different new measures of looking at kind of what activities are carried out, particularly these newer ones that we'll probably go on to talk about. But the last point I would make is that if you think about it, the NHS is Britain's biggest industry. It's Western Europe's biggest industry. And it is slightly amazing to me. We spend so much, 140 billion. And we really don't have a small secure handle on productivity in the way that other large industries probably would but they are probably far less complicated.

Professor Bart van Ark So Kaya when you joined with Diane to do this study you probably never worked really on productivity and healthcare and you have an engineer background.

So, I was just kind of wondering when you looked at these numbers did you ever say to Diane that doesn't make any sense to me for my background to measure it like this?

Kaya Dreesbeimdiek I think I based it on the experience I had in the hospital. It was indeed surprising for me as the hospitals seemed incredibly busy and they were introducing new service delivery models and processes in response to the pandemic really.

And also a large group of hospital staff got redeployed to areas where they were actually not trained for. So there was a lot of ad hoc training delivered, which also in the end, contributed to the health output that we could see. The other example and Diane talked about that already is the shift in case-mix.

So when the waiting lists of elective surgery patients became congested over the course of the pandemic, there was a really a need to add another layer of prioritization to make sure the most important cases were seen first and by doing so it's very likely that more complex surgery with longer time and operating theatres and post-surgical resource requirements is prioritized.

Patients are also likely to get sicker in the time that they do not get treated. So there's still the same procedure that is performed, but the conditions under which they are delivered are much different or much worse. So coming back to the question. I really think that, yeah, hospitals were very busy to keep staff and patients safe. But obviously the circumstance under which they were delivered were different from what we've seen in previous years.

Professor Bart van Ark What I really love about the paper again, which can be downloaded from our website, is that it takes a top down approach by looking at these numbers and then it takes a bottom up approach through the interviews that you've been doing. You've been doing about a dozen of interviews in Addenbrooke's Hospital and dementia, some Foundation Trusts. And that really gives us a bottom up view about what are the actual response and bringing these two things together. I really find kind of interesting.

So talk a little bit more to us Kaya about, you know, when this hit, what works and what didn't work and what changes did the hospital workers make in order to deal with this? And how did that impact our performance?

Kaya Dreesbeimdiek Sure. So, I think what became apparent in the interviews we conducted is that hospitals could draw from previous experiences with peaks of operational pressures, to some extent, but a crisis of this scope and scale is something that hospitals have not gone through before.

So they clearly needed to make unique and very difficult operational decisions with a lot of uncertainty and unknowns involved. And I think a lot of these decisions were made under the impression of pictures and videos from Asia and Southern European countries with COVID patients, essentially suffocating in hospital corridors.

And these impressions made very clear from the beginning that the ultimate goal of all measures taken, as I've said before, was to keep staff and patients safe during this time, but clearly that had significant effects on the reorganisation of services and processes.

So a key element of this earlier response strategy was the large scale cancellation of non-essential services, including elective outpatient diagnostic activities. And this caused this significant backlog of patients at hospitals who are urgently trying to recover now.

They also launched an extensive staff activation and upskilling program, meaning that large groups of staff were redeployed to areas where demand was expected to be high, for example, in ICU.

And then another key measure was the reconfiguration of the hospital in terms of its layout to essentially enable maximum infection control. So Covid and Non-Covid care areas were introduced. Other areas were designated for donning and doffing off personal protective equipment for staff and also social distancing practices were introduced.

So that meant that greater distances between beds were required on the wards to segregate patients and to limit the risk of hospital acquired infections, really, but this is a challenge with estates that is actually not designed to the requirements and practices of a pandemic.

And so in the logical consequence, these measures lead to a loss of beds, not only in absolute numbers, but also in functional terms, meaning that the flexibility of assigning patients to beds was very limited.

So yes, these were elements that primarily flared up in, in our interviews and for sure impacted their overall performance.

Professor Bart van Ark Jennifer, what did you see and hear from your area associates? And is it aligned with what Kaya is telling us here on how the responses were?

Dr Jennifer Dixon Yes, it's completely aligned with what Kaya said. I think I would add a couple of things. The first is in general practice all face-to-face contacts, more or less stops with only the

emergency patients being seen, all that changed to telephone, some video, but mostly telephone. So that changed completely. And actually there was a drop-off in the appointments, particularly among the young to general practice. So I think that's one big area.

And I think the other thing that changed is that there was far greater use of technology within the hospital and also between the hospital and other providers and also with patients as well. So for example, the use of at home telehealth, COVID oximetry, we know about the virtual consultations and there was a lot more horizontal working between doctors working in different hospitals to simply learn rapidly what was going on.

So the use of WhatsApp and other technologies like that to say, how do you treat this patient? With their colleagues abroad. So quite a lot of use of tech, but mostly the technology was not new technology. It was existing technology used far more intensively. And one Chief Executive said to me, I'm sure you've heard this, that we did more in six weeks than we could have done in six years, because suddenly the needs must, the emergency happened, all risk analysis was changed and the professionals were given permission to just go ahead and do things within a broad framework set centrally and it kind of worked, we'll get back to what the main lessons are, but that, I think is a real lesson to be learned.

Professor Bart van Ark Yes and that almost sounds like it was a good thing for productivity, even though we didn't pick that up, but these lessons learned should at least have a longer term impact.

Diane, you said very early on when we started, you said you knew this was a really interesting part of the study. So what are some of the important learnings from you from these interviews?

Professor Diane Coyle Well, I learned things that I normally wouldn't ever have known about.

Kaya has talked about the impact on space and in effect doubling the amount of space that was needed in some areas.

Another thing was about the staff shortfalls or the staff bottlenecks. And it turned out to be ICU trained nurses. And one always thinks it's doctors, who've got the very long and complicated training, but these nursing skills are very specific. And, you know, as Kaya said, there was a lot of retraining going on, but that takes some time.

The other issue that leapt out for me from the interviews was how much people talked about the organisation of the health service and the governance and how to get decisions made that speeded up a lot during the pandemic, as Jennifer said, but a number of our interviewees were talking about their concern that all of the obstacles to decision-making would start to return once things got a little bit back to normal, but I thought it was just very interesting that the organisational issues were so prominent.

Professor Bart van Ark So, I think one question is a little too early to evaluate, whether the way that we responded to this was the right way. But if you look back now at this point in time, what would certainly have been different a year ago from what we've learned? Not sure who to ask this question, Jennifer, maybe start with you, is there already a key lesson learned from this that we should do different, if this ever happens again? God forbid.

Dr Jennifer Dixon Well, I think the big lesson was for me was how many patients were happy dealing with having a virtual consultation and not a face-to-face - if you think all of our out patients more or less now are virtual. It's filtering back and all of most of primary care as well, general practice. So I think that's the big thing. When we did a survey of 4,000 people to ask them what they thought of this. Most people, two thirds said that they had a very positive experience, but 40%, the remaining

third, said not. And those tended to be older patients and also people who are less used to using technology elsewhere and in their lives.

So I think the virtual technology and the speeding up of that and what that then means for how we structure care and future, particularly outpatients, I think is critical.

Professor Bart van Ark Yes. So in terms of what could have been done differently, what would have speeded it up much faster and we would have to speed it up much faster if this ever would happen again. I think basically is what you mean.

Dr Jennifer Dixon Yes. I mean, the NHS has a long-term plan and its plan was to have 30% of out patients within five years virtual. So I think we're there, but the question is, have we done it right, are people left behind, did it work? We haven't had time to evaluate all of that.

So we need to go back and see also for which patients, doesn't it work where the outcomes may be worse, who really does need face-to-face. So that's what we need to take time to do.

Professor Bart van Ark Yes. Kaya you were very close to this. When you did your volunteer work, I mean, is there anything that comes to mind in your area where you say we would absolutely do that different this time compared to what we did a year ago?

Kaya Dreesbeimdiek So I think there were already a lot of lessons learned from the first wave that improved certain operational aspects during the sort of second wave. But I think it's important to realise that this was a very novel disease. That little knowledge existed about before and clinicians basically started to learn about it from the news.

And that's the tricky thing with every future incident, surely hospitals learn a great deal about how to set up emergency structures, how to ramp up surgical capacity at that scale, they have learned what was possible in terms of organisational change and dynamic decision-making. And as, Jennifer mentioned, in terms of technology, and clearly the experience also highlighted some of the known and unknown gaps in the system that needed to be addressed.

But at the end of the day, the characteristics and magnitude of a huge disruption of a future disease could be very different from what hospitals experience now. And the plans that worked well now would not be applicable then as they were this time round.

Professor Bart van Ark Yes and that really gets us to the sort of longer term implications, which we are going to talk about after the break. But first we are going to take a very quick break and then back to you in just a minute.

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Professor Bart van Ark Welcome back to my discussion with Diane Coyle, Kaya Dreesbeimdiek and Jennifer Dixon on the pandemic and productivity in healthcare.

So we already talked before the break a little bit about some of the lessons learned but let's also talk a little bit more about the longer term implications of what it might mean for the future performance of the NHS.

In fact, last week in our podcast, we met with a researcher from the McKinsey Global Institute, and they did some work around productivity in the post pandemic period. And that picked healthcare as one of the key sectors where the potential to accelerate productivity could actually be more than 2% as now until 2024, 2% per year.

And their argument is that much of that is driven by the huge learnings from telemedicine that Jennifer, you already referred to earlier. And industry experts are actually saying that 20% of healthcare spending could be delivered virtually. And they also reported in the US that three quarters of patients expressed interest in using telehealth in the future. And then Jennifer, I think your own Health Foundation did a study that showed 3/5 of UK patients use new technologies or use existing technologies, much more intensively. So it seems that there is progress made on what I might call the front end and here and how sort of interact with patients. And how's it impacting on patients and you know, will ultimately help us to deliver the care that you want. And how do you actually align this with the need to also interact in person with patients?

Dr Jennifer Dixon I think in terms of the exam question, which is how to increase productivity, technology is definitely part of the picture, but I would actually foreground staff and management first, actually, because staff is the biggest cost centre in the National Health Service. And so there's quite a lot we can say about how staff are managed that we should probably talk about, but you ask specifically about technology here. And as I said, you know, people who use the National Health Service.

Almost everybody uses technology in some way and interacting with the system. But what we've seen is a massively increased intensity of use during the pandemic in the ways we've described. And the majority of people saying they had a positive experience than they were used to. These are staff as well as patients.

But of course, I think the issue here is how to address the needs of those who are older, who may not be used to using technologies. And I suspect this is where a lot of care and costs will be concentrated in future. So how do we best work with these individuals so that no one is left behind?

But I think when it comes to increasing productivity in future, we have to look at technology for sure. But I do think one of the big lessons is to make sure that we look at management, look at staff welfare. We look at spare capacity and resilience, both of staff and also of a resilience of capacity in the system.

There's quite a lot of learnings, I would say here. I could go on, I think there are a couple of more particularly the data that we have to make decisions and indeed the decision-making structures that were in evidence during this pandemic. So technology is part of the picture, but it's only one of them I would say.

Professor Bart van Ark Links to the issue that I specifically mentioned is the front end, where it sounds like technology is great and you get on the call with your GP and you have this discussion with him, and that sounds good, but you know, it changes the way that staff are going to work. And also all the processes behind this, the way that these calls are being documented for patients and so

on that this must have had huge implications for the way that practices and hospitals were operating.

Dr Jennifer Dixon It had a huge impact. And also don't forget, medicine is part an art as well as a science. It cannot all be crunched down to algorithms and decision trees. So you actually need, in some cases, the patient in front of you, particularly where there are sometimes psychological overlay to illness, which often is the case.

It is very difficult to do a lot of that without being face to face. So I think I think this it's easy for a consultancy company to say technology is the silver bullet, but actually when it comes to real people and particularly people with multiple chronic disease conditions, particularly as depression is the commonest chronic condition that we face, which has a huge impact on the economy. I do think we have to think about face to face as being the most effective form of treatment. So it's technology tempered by some of those qualifications.

Professor Bart van Ark Kaya from the interviews that you did. What did you see in terms of technology responses and how hospitals were dealing with this?

Kaya Dreesbeimdiek Yes, so I would emphasize that telemedicine clearly rich and important capturing during COVID and for telemedicine to become a real and sustainable alternative though, it's really important that the infrastructure needs to be improved as Jennifer mentioned. So, there is only productivity gains if patients do not need to come in after a video consultation for any sort of test or follow up examination.

And if we look at what is happening in the start-up ecosystem of digital health, there are actually very promising ideas and technologies on how to enhance telemedicine. So for example with test kits or medical devices that are being sent to the patient's home and can actually compliment video consultations that way.

So these developments, I think, could also greatly improve how we deliver preventative care or monitor patients. And this not only increases convenience for them, but can also takes a significant burden off the shoulders of the health care system.

But as Jennifer already pointed out, the infrastructure needs to be in place and for some patients or for some conditions telemedicine might not be the long-term solution.

Professor Bart van Ark Yes. So Diane, there's a whole other part to lessons learned and that's really on how we're thinking of organising the healthcare sector. You know, obviously it tends to be a relatively centralised sector. The government just released a white paper health policy inside 2021, where it argues that actually the NHS and local authorities need to cooperate much more to integrate care and reduce bureaucracy and enable joint professional services.

Do you think that the pandemic has changed the thinking around organising the health care industry and the way we need to go forward with this?

Professor Diane Coyle Well, there does seem to have been a shift away from thinking it can be organised on more market principles to more direction planned again, I think there are different kinds of lessons.

So a lot of the attention about technology has focused on patient consultations. There are other aspects to technology. One of them was implicit in what Jennifer said, and that's about information flow within the NHS. How are staff using it amongst themselves? And what data are they accessing?

The NHS also has great purchasing power, great procurement power. So another area of technology is all of the innovations and treatments and, you know, the incredible progress in pharmaceuticals that we've seen this year. So thinking purposefully about using the NHS as a customer to encourage innovation, I think will be important.

But the other thing that really struck me was we had always known that the NHS was overstretched. It was, damagingly so in comparison with other countries, and if we had thought about health as part of the national infrastructure, part of the underpinning within which the economy and society can't operate, we would never have done that because any infrastructure always has spare capacity built into it. Or resilience if you want to call it that.

And so one of the lessons I took was thinking about the health service as infrastructure. So what kinds of resilience need to be built into it? And that's like, you know, paying an insurance premium on your house. If the worst happens, then you have that cover.

So paying extra for some spare capacity is that kind of insurance against future crisis and that's the way to think about it.

Professor Bart van Ark Yes, that's a completely different way of thinking, Jennifer. I wonder what you think of that sort of proposition, to think of it as an infrastructure?

Because, you know, although I can understand sort of the willingness to, you know, move away from this internal market idea that the NHS has dealt with and suffered from in many ways towards more centralisation of decision-making at the same time, you run the risk that you're not really dealing with the issues on the ground as much as you should.

So, how do you think about this? Jennifer in terms of thinking, in terms of infrastructure and how does that relate to the centralisation question?

Dr Jennifer Dixon I think Diane's points are really well made. I mean, in the NHS since 1990, we've had a wave of discussion and policy about introducing market forces to some extent, which is a kind of just in time kind of mentality and also that NHS trusts are meant to wash their face financially.

The idea that you might have standing facilities that are not necessarily funded through everyday business, but they're standing there as Diane says, in case of insurance, was very unfashionable, even though we had to do it because we needed intensive care units that weren't full all the time.

So I think it's absolutely right to think of pricing in resilience as part of national infrastructure, for sure. Which means the kind of subsidy and thinking of it in those terms. I think, just the final thing, as this kind of market way of thinking to inject incentives into the National Health Service, that tide has come and gone if you like.

Nothing is really taking its place at the moment. And so people are at a slight loss as to how to boost productivity. And I think now the pandemic has shown that there are benefits to collaboration and centralisation. And with that comes a lot more detailed planning rather than just in time, which includes pricing and spare capacity and not considering it as waste.

Professor Bart van Ark You are saying centralisation and collaboration go together, right. If it is just centralisation, but then, you know, the individual practices lose their sort of impact and making sure that they can sort of implement what's going on, on the ground that would be going the wrong way.

Dr Jennifer Dixon Indeed and collaboration is no nirvana, as we know from human nature. So there'll have to be some incentive blend, but it will be different and probably not linked to the previous market.

Professor Bart van Ark Kaya you're an engineer can spare capacity be modelled in the healthcare sector?

Kaya Dreesbeimdiek So yes, I thought you were going to say that. Yes, I, as I have a background in manufacturing and industrial systems I feel very tempted to look at the hospital as a manufacturing plant. However, hospitals are very complex systems with very unique characteristics and you operate different services under one roof for some of which demand is more predictable and adjustable than for others.

And also patients do not follow a straight production line, but can have very distinct clinical pathways with their individual care plans getting changed quickly. So having said that, I think to be resilient as a hospital and to think about how we can model spare capacity.

There's really this question of how robust do we need to be to absorb forthcoming demand peaks, and how flexible do we need to be, to respond effectively? And this question is closely connected to where and how hospitals can actually realise their capacity as means to address minor or major fluctuations in demand.

Professor Bart van Ark So, we need to wrap up. It's a great conversation. We're just touching the surface of this very interesting work. And I would really recommend the audience to take a look at our website, productivity.ac.uk to read this report. But I'd like to end with a question to each of you.

You know, this obviously has been a very difficult period for the health care sector. But as you all said, there are also some interesting and positive lessons to be learned. So how would you in three or four words characterise the most important lesson learned from this very difficult time for the healthcare system that may give us confidence we can do better in the future? Diane.

Professor Diane Coyle I think we need to think about it in a different way as if it's part of the infrastructure, part of the complex set of networks and technologies that we need for life in our society and economy.

So think of it as needing long-term investment, adequate capacity and constant upskilling and you know, due reward for the people working in the sector.

Professor Bart van Ark Jennifer.

Dr Jennifer Dixon Yes. Thank you. I would say the biggest learning would be that in an emergency, we can trust professional staff on the ground to do the right thing with minimal oversight. And I think that's an enormous lesson for management.

Professor Bart van Ark That’s a great lesson. Yes. Kaya, what's the most important lesson learned for you?

Kaya Dreesbeimdiek I would say organisational structures, overcoming inertia. So this is something that many of the people we interview actually raisesd, that there is great potential for hospitals to allow for change that help not only the delivery of better care, but to also address future challenges more effectively.

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Professor Bart van Ark Perfect. So thank you to the panellists for their great contributions to this conversation. Diane Coyle, Kaya Dreesbeimdiek and Jennifer Dixon. Great to have you on. In our next episode, we're going to travel up north and find out whether the Northern Powerhouse, aiming to build a stronger economy in the north of England, is still alive and how it can help to create productivity growth in the north.

We will be joined by Lord Jim O'Neill, Dame Nancy Rothwell and Professor Phillip McCann. For this series, you can also sign up for your favourite platform to make sure you don't miss out on any future episodes.

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And this was me again, Bart van Ark at The Productivity Institute. Thanks for listening and stay productive.